

BIRD STUDY IN INDIA : ITS HISTORY AND ITS IMPORTANCE

Salim Ali



INDIAN COUNCIL FOR CULTURAL RELATIONS

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Secretary's Address

Dr. Salim Ali, Shri Vajpayee and Friends :

I have great pleasure in welcoming you to the 16th Azad Memorial Lecture. I need not dilate on origin of these Lecture series as the reasons for its inception and the interest that these series have generated are well known. Our speaker today is Dr. Salim Ali, one of the best known ornithologists in the world today, and more important the most distinguished Indian in his field of specialisation. As a

scientist, traveller, conservator of nature and wild life, as an avian zoologist, author and perceptor his long life has been a fabric of intellectual and perceptive achievements. He joins a very distinguished group of individuals who have delivered lectures under these series. The first of whom was no less a person than Pandit Jawaharlal Nehru himself.

What is interesting about today's subject namely "Bird Study in India : its History and its Importance", is that it adds a new chapter to the content of these Lecture series. So far these Lectures have been on political, social, economic and historical subjects. Dr. Salim Ali would add a discussion of scientific enquiry to the series.

One of the significant characteristics of Maulana Azad as an individual was his abiding curiosity about his social, intellectual and natural environment. Though he recognised that human existence evolves in compartments responsive to individual needs, he refused to view life in a fragmented or compartmentalised manner.

The meshing and inter-action between the animate and inanimate, between environment and being is the most relevant subject of enquiry for anybody who wishes to comprehend life in rational and idealistic terms. Dr. Salim Ali's life and work exemplifies this approach and I am sure that his Lecture today would add to our perceptions of environment,

and ourselves in relations to it. I now request the Foreign Minister to address the gathering after which Dr. Salim Ali will deliver today's Azad Memorial Lecture.

J. N. Dixit
Secretary
Indian Council for Cultural Relations

Welcome Address

Dr. Salim Ali, Excellencies and Friends :

It gives me great pleasure to welcome you to the 16th Azad Memorial Lecture organised by the Indian Council for Cultural Relations. I am glad to welcome you, both in my capacity as President of this Council, and as the Foreign Minister because the objectives of the Azad Memorial Lectures combine in themselves the aims both of the Council and of our foreign policy, namely the “nurturing of a better

understanding among different peoples of the world". These Lectures, as you know, were instituted in 1958 by the Indian Council for Cultural Relations to honour the memory of the late Maulana Abul Kalam Azad, founder President of the Council and free India's first Minister for Education, Culture and Scientific Affairs. To my mind these Lectures are an attempt at doing more than honour to the cherished memory of this great Indian leader. They are also an attempt to keep his values and his inspiration alive in our consciousness and in our national life.

The first speaker to honour Maulana Azad in these series of Lectures was the late Jawaharlal Nehru. The many distinguished Speakers who followed him have come from different parts of the world belonging to different nationalities and dedicated to different disciplines. The subjects on which they spoke varied from politics to arts and science. But the unifying theme in all these Lectures over the years was the quest of the international community for empathy, rational perceptions and harmony in relations between peoples.

Each of the Lectures in the series had a deeper motive of going to the root causes of crises in human understanding and human identity and to see how they can be analysed, understood and removed. The range of subjects covered in these Lectures are also an affirmation of the long tradition of rational humanism in India which Maulana Azad personified.

His interests covered the entire spectrum of human thought, feeling and action. His vision and perceptions were always conscious of the interaction between societies and their surroundings, human beings and their natural and physical environment.

The speakers who have graced these Lecture series so far have spoken about political, social, economic, scientific, technological and cultural issues. Today when Dr. Salim Ali joins this distinguished group of speakers an additional dimension would be added to the range and content of these Lectures. The subject of his speech is "Bird Study in India : its History and its Importance". I am sure that what Dr. Salim Ali has to tell us, specially in terms of the importance of ornithology, would be of significance not only in the technical and academic sense but also in terms of larger norm of man learning from nature.

Dr. Salim Ali needs no introduction as an author, scientist, traveller and ornithologist. In his life of eight decades he has exemplified an exciting adventure both in curiosity and consciousness. His contributions as an individual as well as in collaboration with other scientists and scholars to ornithology, wild life and ecology, zoological and botanical research have left, and will leave an indelible impact on studies in these fields for years to come. I am grateful and happy that he has found time to come and speak to us today because in many ways his life exemplifies the ideal personified by Maulana Azad.

The ideal of nurturing different strands of knowledge and culture into a synthesis of values and approach to life for the betterment of the people at large. I welcome Dr. Salim Ali to the function. I now request him to speak to us.

Thank you.

Atal Bihari Vajpayee
Minister for External Affairs
President, Indian Council for Cultural Relations

Bird Study in India : its History and its Importance

I feel deeply honoured at being invited by the Indian Council for Cultural Relations to deliver this annual Azad Memorial Lecture for 1978. At the same time I feel rather overawed when I look over the formidable list of my eminent predecessors in the series, and the learned topics on which they had discoursed. However, though I cannot vie with them in profundity I can perhaps try to tell you something about the subject that has continued to fascinate me through a long life of bird watching, but which has

eluded a deeper and more general interest in the public because of its allegedly elitist nature, and may be also because of its relevance to human life being not so patently obvious. Since this lecture is in memory of a great man whose learning and scholarship, no less than his humanism and statesmanship have left such an indelible mark on our culture and nationalism, I may be permitted to begin with a personal digression. In the year 1948 when I happened to be engaged on a field survey of the bird fauna of the erstwhile Orissa states comprising the Eastern States Agency, I received a lunch invitation from Mr. Asif Ali, then Governor of the State, to meet Maulana Saheb, then the Union Minister for Education, who was visiting Cuttack on tour. I was delighted at the prospect because shortly before this I had been reading in camp with much delectation and many a chuckle Maulana Azad's inimitable essay 'Chirya Chiray ki Kahani' in his admirable Urdu classic *Ghubar-e-Khatir* written during his long incarceration in Ahmadnagar gaol which began on 9 August 1942 as aftermath of the 'Quit India' resolution passed by the Indian National Congress under his Presidentship. As many here today may know, the narrative concerns a pair of house sparrows who had made up their minds, as determinedly as only a pair of house sparrows can, to build their nest in a hole above the Maulana's bed in his prison room. The pair worked assiduously all day long bringing in straws and rubbish and attempting to stuff it into the selected hole, but

succeeded only in dropping most of the litter on to the bed below. When, after several days, the birds remained undeterred by the active retaliatory measures the owner of the bed took to dissuade and dislodge them—not all perhaps strictly non-violent by text-book definition—he was finally compelled to admit defeat. Thereafter he adopted a different policy, one of friendly appeasement, and by patience and perseverance succeeded to such an extent that he actually got the birds, and others of the jail sparrow community (not the other jail birds!) even to perch on his shoulder and to peck grain from his palm. This intimate familiarity fanned his interest in the sparrows and prompted him to record his penetrating observations on the temperament, idiosyncracies, social behaviour and marital relations of each individual with an insight that would do justice to a trained naturalist. He classified different individuals according to their various qualities, and the humour and incisiveness of the descriptions with the chasteness of his Urdu diction eruditely interlarded with appropriate Persian couplets reeled off from a prodigious memory make them a rare treat to read. For example, one of his more bouncing visitors he distinguishes by the name of ‘Mulla’ and puckishly describes his qualifications as ‘argumentative, garrulous, quarrelsome, and one who managed to elbow himself to precedence over newcomers and sermonized (chirped) from on high (an elevated perch)’. Then, in the same puckish strain he asks

“What other name could be given to such a character ?”

In describing the nest-feeding activities of the parent birds in his prison cell, the Maulana quotes the findings of ‘an ornithologist’ on the average number of daily visits a pair of sparrows makes with food for the nestlings. When I first read the account I liked to identify that ornithologist as myself, and to fancy that the information may have been culled from my own *Book of Indian Birds*. Talking to his personal secretary at this Cuttack meeting years later, I learnt that my surmise was indeed correct. He had got his statement out of a copy of the above book lent him in Ahmadnagar Fort by his fellow-prisoner Jawaharlal Nehru—himself a keen bird student and nature lover! I am happy to recall that lunch meeting with Maulana Saheb in the context of today’s lecture, the pleasant conversation we then had about birds, and the lively interest he showed in the subject. But to come to my thesis. Perhaps a brief historical review of bird study in India from ancient times up to the present may help to provide a correct perspective. I am not aware of any ancient treatises on Indian birds, as such, which describe their attributes and external characters in sufficient detail to permit their identification with certainty, except perhaps in the case of the commoner species that figure prominently in mythology, legend or folklore—such as crow, parakeet, koel, peacock, and some others. In any

case a direct assessment of their worth as 'scientific' text would be beyond me since I am no scholar of Sanskrit or Pali. However, the English translation of the Sanskrit text of a book *Mrigh-Pakshi-Sastra* or 'Science of Birds and Animals' by Hamsadeva, said to be a Jain author of the 13th century A. D.—the only work of this kind known to my friend Shri Harinarayan Acharya of Ahmedabad, himself an erudite Sanskrit scholar and a competent ornithologist—is not impressive. Its bizarre descriptions, often comically vague and amusing, perhaps rendered more so by the translator's special brand of English, are not very revealing. For example, what is ostensibly meant to be the Saras Crane is described as follows : "They are very tall, having long legs, red beaks and white bodies. Their stomachs and rear portions are stout. Their wings are broad and big. They are a little impatient when they are hungry. They eat small fish, fruits, lotus trunks and roots and others. They often dive in water and play. They generally enjoy during nights. They fly in the sky with their couples. They perch on the cool trees at the time of wearisome *sic*. They are much afraid of the roar of lions and tigers and they run away to distant places. They are fond of swimming even in the floods and they have smooth feathers. They have a little passion."

The other sources of information regarding Indian birds of the pre-Moghul period are the several lexicons of Sanskrit words, though these are not

very helpful in identifying the species either. Some names are based on calls, i.e. they are onomatopoeic like *Kaka* for the crow (which says 'ka...ka'); others are based on coloration, habits, gait, method of feeding, and so on. Some names are identifiable easily enough, while others are obscure. Perhaps the only person who has attempted to identify birds from such Sanskrit names was the late Dr. Raghuvara in his publication *Indian Scientific Nomenclature of the birds of India, Burma and Ceylon*, 1949. With varying—often dubious—success he identifies some 250 Sanskrit words with known species of Indian birds. Some of his conclusions, however, are distinctly far-fetched! Classical Sanskrit literature occasionally makes specific mention of Bird Migration, as for example the migration of geese (*hamsa*)—wrongly rendered as 'swans' by many commentators—to lake *Manasa* (*Manasarovar*). The poet *Kalidasa*, a close observer of bird behaviour—described the migratory habits of two species of geese, *Raja-hamsa* (*Barheaded*) and *Kadamba* (*Greylag*) as accompanying the rain clouds on their way from the *Vindhya*s to the *Himalayas*.

The Indian *Koel* and its habit of brood-parasitism was well-known to the Vedic seers, and described unambiguously in Sanskrit literature. Interestingly enough this appears also to be the earliest record of avian brood-parasitism, since it was described many centuries before Aristotle (384-322 B. C.) or his

immediate colleagues or predecessors began to write about the European Cuckoo.

The Moghul Emperors, at least from Babur to Shah Jahan, were renowned aesthetes and lovers of Nature in all its forms. Among them the two most outstanding naturalists were Babur and his great-grandson Jahangir. Some of the accounts they have left behind of the habits and behaviour of the birds that came under their personal observation are so apt that they could scarcely be bettered for incisiveness and scientific accuracy today. What is more creditable about these royal naturalists is that they do not rely on mere hearsay but make a clear distinction in their writings between their personal observations and what has been reported to them by others. For instance, while describing the Monal Pheasant, Babur writes with subtle humour "A remarkable circumstance is told of them. It is said that in winter they come down to the skirts of the hills, and if in their flight one of them happens to pass over a vineyard he can no longer fly and is taken." He then continues "God knows the truth. Its flesh is very savoury." Mark here the clear distinction between what God knows and what the Emperor can personally testify!

The outstanding features of Jahangir's character were his love of Nature and his powers of observation. It has been rightly said of him that had he been head of a Natural History museum he

would have been a better and happier man. His *Memoirs* are replete with observations on birds and other animals written with an accuracy and insight that would do credit to a modern student of bird behaviour and ecology. He has, for instance, some extremely useful and interesting notes on the breeding habits of the Saras Crane from the time of their pairing onward and till the eggs were hatched, that are in complete accord with present day knowledge. Jahangir established and patronized a school of animal painting at his court headed by the famous Ustad Mansur, honoured by the Emperor with the title of Nadir-ul-Asr. Whenever an unfamiliar or exotic bird or beast was brought to him, Jahangir first studied it carefully for its characteristics before describing it in his *Memoirs*. Immediately thereafter he caused it to be painted by Ustad Mansur or one of his school to serve as supporting illustration. Since the Emperor's reputation as a lover of birds and animals had spread far and wide throughout the world, foreign emissaries accredited to the Moghul court vied with one another to bring him as *nazar* or *peshkash* the strangest and rarest birds and beasts from their respective countries for the Imperial menagerie. In this way was built up the unique collection of exquisite animal portraits which, on the disintegration of the Moghul Empire gradually got scattered and, largely through loot and skulduggery, found its way to unexpected and far-flung corners of the earth. Among the bird portraits attributed to

Ustad Mansur, but which is certainly the handiwork of one of his school and period, is a painting of a Siberian or Great White Crane. At the present time this crane is one of our rarest and most endangered species with a total world population of perhaps no more than 250 individuals. A significant section of this population, 70 birds or so, visits the Keoladeo Ghana Bird Sanctuary of Bharatpur every winter between November and March to add to the glory of this priceless natural wetland. The interesting point about this painting—fortunately still in the collection of the Indian Museum, Calcutta—is that it was executed between the years 1616 and 1620 A.D. and thus nearly 160 years before the bird was actually ‘discovered’ and described for western science (in 1773) by the Russian zoologist Pallas from the swamps bordering the Ob and Irtysh rivers in USSR! Another bird painting, a miniature, of Jahangir’s period and though unsigned and undated clearly of the Mansur school has the unique distinction of being one of the only two drawings ever made from life of the Mauritius Dodo (*Raphus cucullatus* L.) which became extinct in 1681. The portrait is considered by experts to be the most scientifically accurate one in existence of that flightless pigeon-like bird which first became known to Europeans in 1598 and was so completely exterminated in less than a hundred years by the hungry sailors of visiting ships and the rats and domestic animals introduced by them on the island. This remarkable

painting had lain in oblivion in the Institute of Orientalistics of the USSR Academy of Sciences until stumbled upon by Dr. A. Ivanov of the Leningrad Zoological Museum. He brought it to the notice of ornithologists gathered in Helsinki for the 12th International Ornithological Congress in 1958 and caused quite a sensation. Strangely enough, and contrary to his usual practice, there is no mention of the Dodo in Jahangir's *Memoirs*, and whence and how the living specimen came to be available for painting seems a mystery. A plausible explanation has been suggested by me elsewhere (in Alvi, M.A. & A. Rahman 1967, *Jahangir the Naturalist*). Jahangir's *Memoirs* ended in 1624, three years before his death. The Dodo must have come into Jahangir's possession and been painted during the blank period and hence it unfortunately finds no mention in the chronicle. It is on record that two live specimens of the Mauritius Dodo were kept at the East India Company's factory in Surat where the chronicler Peter Mundy first saw and described them in 1628, i.e. 11 months after Jahangir died. It seems more than likely that the miniature represents one of these same birds. Or it could even be that there was a third bird in this batch which had been presented to Jahangir by the Surat factory before his death as an ingratiatory gesture, knowing the Emperor's passion for strange and exotic creatures.

Foreign adventurers and travellers to India in the closing years of the Moghul Empire, towards the

end of the 18th century and the beginning of the 19th, had carried back with them as novelties from time to time to various European museums small collections of the skins and eggs of Indian birds. Sporadic collections had also been assembled by servants of the East India Company for its own museum in Calcutta in various newly purloined territories of the insiduously expanding British Indian Empire. But scientific ornithology, more or less as understood today may, for practical purposes, be said to commence with the publication of the two volumes of Jerdon's classic *Birds of India* between 1862 and 1864. In this work the author bestowed an English name on all the birds of India largely based on British analogies. While many of them are reasonably appropriate, others have gone through numerous attempted improvements by successive authors. It is to be hoped that English nomenclature has at last attained near-stability with the latest publication, the 10-volume *Handbook of the Birds of India and Pakistan* by Salim Ali and S. Dillon Ripley, 1968-73. The standardization of vernacular bird names for all-India use still remains an urgent need in order to satisfy the demand for popular bird books in the regional languages.

One of the earliest of the 'modern' accounts of Indian birds was actually published in 1713 by Edward Buckley, an East India Company surgeon in Madras, with descriptions and drawings of 22 birds found in and about Fort St. George. Several

other bird collectors and writers followed during the rest of the century, many of whom have left their mark on Indian ornithology either by describing newly discovered birds, or having such novelties named after them, and in other ways. The first serious attempt at recording the avifauna of a definitive region in India in a scientific journal (*Proc. Zool. Soc., London*) was a paper in 1831 by a Capt. James Franklin, a geologist who had undertaken expeditions in the Central and United Provinces to study the rocks in the Vindhyan Hills, and incidentally to collect birds for the Asiatic Society. He collected some 200 birds of 156 species, of which 32 he described as new.

Among the early writers on Indian birds before the publication of Jerdon's *Birds of India* another specially notable one was Col. W.H. Sykes who came out to India in 1803 aged 13, and, believe it or not, received a commission in the Bombay Army. He saw a great deal of service in the Mahratta wars, and collected birds in the Bombay Deccan. His well-known paper 'A Catalogue of the Birds of the Deccan' was published in the *Proceedings of the Zoological Society, London* in 1832. He described a number of new species many of which he named after Hindu deities such as *Milyus govinda* for the Pariah Kite, *Hippolais rama* for a Tree Warbler, *Petrocinchla pandoo* for the Blue Rock Thrush, *Hypsipetes ganeesa* (after Ganesh) for the Southern Black Bulbul, and others. There were several other

similarly active field workers, mostly civil or military officials, in the employ of the East India Company scattered widely over different parts of the country during the first six decades of the 19th century. But the period was dominated by the virtual founders of Indian ornithology, namely Brian Houghton Hodgson (first assistant British Resident and later Resident, at the court of Nepal between 1820 and 1844), Edward Blyth, the Curator of the Asiatic Society of Bengal's museum, Calcutta, from 1841-62—whose writings did more for the extension of natural history studies in India than any other—and Thomas Caverhill Jerdon, a surgeon in the Madras Army of the East India Company's establishment. John Gould, the taxidermist of the Zoological Society, London, was the first to make known birds from the Himalayas from a small collection of skins he had acquired between 1825 and 1830. Most of the birds were new and Mrs. Gould made drawings of them which were described by N.A. Vigors and published in *A Century of Birds from the Himalayan Mountains* in 1832. In 1849 Gould commenced a sumptuous elephant folio work of coloured lithographs, *Birds of Asia*, but died before it was completed, and Dr. Bowdler Sharpe was responsible for the 7th (final) volume which came out in 1883.

Jerdon's *Birds of India* epitomizes the knowledge up to that period based largely upon the publications of these and several other illustrious field naturalists, and on the vast collections of skins made by them

and their numerous correspondents and proteges scattered over the Company's territories. In the latter part of the 18th century, and even till well into the 19th, taxidermy was still in its infancy, and instead of making a collection of stuffed skins it was the custom in India to employ local artists to make paintings of birds. The tradition of life-like animal portraiture set by the Jahangir school was still very much alive. Many collections of bird paintings were thus made, e.g., those of General Hardwicke and Francis Buchanan-Hamilton, and some of them became famous because of the many new species that were described on their basis in lieu of actual skins. In 1844 Jerdon himself had published a selection of 50 lithographs with descriptive letterpress entitled *Illustrations of Indian Ornithology*. The originals of these were drawn by Indian artists, and half the number were also lithographed and painted in Madras. It was noted at the time that 'Their excellence and the faithfulness of the drawings has been universally allowed.'

The publication of *Birds of India* at once gave a marked impetus to bird study in the country, still almost entirely restricted to Europeans. It found new devotees among British officials, planters and professional men, some of whom in turn were soon to become prominent names in Indian ornithology. The period thence, and right up to the publication of the first edition of the bird volumes of the India Office-sponsored *Fauna of British India* series by

Oates and Blanford, was completely dominated by that extraordinary personality, Allan Octavian Hume, who had meanwhile appeared on the scene. Apart from his other great intellectual and humanitarian qualifications Hume's special claim to be remembered in India lies also in the fact that he was one of the original founders of the Indian National Congress, and this while still in the civil service of the Government of British India. He has, with good justification, been called 'The Father'—and by those who were irked by his occasional dogmatism 'The Pope'—of Indian ornithology. He collected methodically and intensively, himself as well as with the help of his numerous correspondents and proteges widely dispersed over the country, chiefly between the years 1870 and 1885, and thus brought together a collection that has doubtfully ever been equalled in magnitude in any branch of zoology or botany. It totalled some 60,000 skins of birds, in addition to a very large number of nests and over 16,000 eggs, all of which he later presented to the British Museum. Hume founded and edited a journal of Indian ornithology with the somewhat eccentric title of *Stray Feathers* between 1872 and 1888. Its 11 volumes containing papers by some of the more upcoming ornithologists of the time, written under his energetic guidance, and much of it by himself, are a veritable gold mine for the ornithologist and an eloquent memorial to the zeal, erudition and versatility of their remarkable

editor. In *Stray Feathers* Hume has described a large number of novelties discovered during the period, and this work is indispensable for any serious study of Indian birds.

Hume was a facile and prolific writer and his pungent criticisms of contemporary ornithologists and ornithological trends and his *experto crede* pronouncements on bureaucrats and their inanities, are often amusingly interlarded with puckish humour. His account of the hare-brained introduction "by our beneficent Government anxious to succour its suffering people from rats" on some of the inhabited islands in the Laccadive (Lakshadweep) group, and the fate of "a lot of snakes and mongooses" that had first been sent down to deal with the rodents followed by a lot of Wood Owls when the latter took to the coconut trees for escape, and in turn the doom of those unfortunate owls cast upon unforested coral shores in totally incompatible ecological conditions and under strong superstitious objection from the islanders. "Unfortunately" continues Hume slyly. "as is too commonly the case in India. popular prejudice interfered to mar the success of a paternal Government's beneficent schemes." In upshot the birds soon came to an end but not the rats! The account is too long to be quoted here in all its amusing details, but to any one who is interested in Hume or in Indian birds, or even in convincing himself that bureaucracy

hasn't changed, I would strongly recommend a reference to volume 4 of *Stray Feathers* (pp. 433-4).

When *Stray Feathers* ceased publication, in 1889, most of its former contributors as well as other workers who had come into prominence meanwhile, diverted their writings to *The Ibis*, the journal of the British Ornithologists' Union and to the *Journal of the Bombay Natural History Society*. The last, which made its debut in 1886 has maintained unbroken publication since then. It is now in its 75th volume and has become increasingly important in disseminating knowledge of Indian birds. It enjoys considerable scientific prestige internationally and is recognized as the foremost natural history publication in Asia. Indian ornithology received its second definitive boost after Jerdon by the publication between 1889 and 1898 of the 4 volumes on birds by Eugene W. Oates and W. T. Blanford in the *Fauna of British India* series. Like its predecessor this work brought together, and up to date, all the advances in knowledge resulting from the extensive researches done in field and museum during the intervening 27 years. This renewed fillip was clearly responsible for producing the rash of outstanding field ornithologists that distinguished the next 33 years up to the publication of Vol. 1 of the second edition of the *Fauna of British India* series on Birds—the *New Fauna* for short—by E. C. Stuart Baker, himself an illustrious product of that period.

The six main volumes of the *New Fauna* were completed in 1930. They in turn showed up many lacunae in our knowledge, especially concerning the areas in the subcontinent imperfectly explored or not at all, such as the Eastern Ghats and the territories of many of the princely States. This generated a series of regional ornithological field surveys organised or sponsored by the Bombay Natural History Society, which resulted in significant advances in our knowledge of the ecology, systematics and distribution of Indian birds.

A feature of the years, particularly between the two World Wars and since the end of the Second, is the increased emphasis on bird watching and ecological study in India as distinct from specimen collecting. This has been facilitated, among other things, by the availability of well illustrated books on Indian birds for identification in the field and by the great improvement in technology and optics—in binoculars, cameras, telephoto lenses, also fast films, colour photography and sound recording—all essential tools for serious field work.

All the new accretions to knowledge have found their place in the latest work—the 10-volume *Handbook of the Birds of India and Pakistan* referred to earlier—along with a great deal of other data collected by several keen Indian ornithologists who had surfaced in the intervening 40 years since the *New Fauna* appeared—and especially, since our

Independence. The two most outstanding British ornithologists specializing in Indian birds in the period up to 1943 were Dr. Claud B. Ticehurst and Hugh Whistler, the former a Captain in the R.A.M.C. during the First World War, who had spent a couple of years in what is now Pakistan, and the latter an Imperial Police Officer in Punjab for a number of years. Since the untimely death of these two veterans—Ticehurst in 1941 and Whistler in 1943—the British era of Indian ornithology has virtually ended. Most of the work thereafter has been done by Indians a few of whom have come into international prominence. A distinguished exception is my colleague and co-author of the *Handbook*, the American Dr. S Dillon Ripley, now Secretary of the Smithsonian Institution, Washington. Dr. Ripley has been closely associated with Indian ornithology and Indian ornithologists for over 30 years, both in the field and the museum, and in collaboration with Indian colleagues has undertaken several expeditions and made, and continues to make, important contributions to knowledge.

Why Preserve Birds ?

Well-meaning laymen are shocked at the perversity of those who advocate the protection and conservation even of such birds and wild animals as often cause considerable damage to food crops, orchard fruit, forest resources and in other ways, and are

thus manifestly inimical to man's interests. Since grain-eating birds attack standing crops in broad daylight, and hawks may occasionally purloin a chicken or two from the poultry yard, their criminal mischief is clear for all to see, and sufficiently self-condemnatory. Thus many birds are arbitrarily singled out for capital punishment, and laymen are convinced that if only these 'vermin' were eliminated all would be well for the poor cultivator and his concerns. It seems to them as simple as that. Against this notion there are those who after careful study and objective assessment maintain that but for birds the world would perish, because without their unrelenting check on insect numbers no plant life would be possible, or the animal life dependent on it including Man himself. How can these two conflicting views be reconciled? That there is much truth in the latter view is evident from the facts. Over 50,000 species of insects have been described from the Indian subcontinent, doubtless with many more still to come. Many of them, such as locusts, beetles, moths, caterpillars and termites, are extremely harmful pests of agriculture and forestry upon which our national economy leans so heavily. The rates of reproduction in insects are truly astronomical. In America it has been computed that a single pair of the Colorado Beetle (*Leptinotarsa decemlineata*) would without natural checks—in which birds play an important part—increase to 60 million in a year. This insect belongs to a family (Chrysomelidae) that

is prolifically represented in India. The fecundity and voracity of locusts both in the wingless hopper stage and as flying adults is well known. They lay eggs in the soil, each female laying several capsules or egg-masses of 50 to a hundred eggs each. On a South African farm of 3,300 acres no less than 14 tons of eggs have been dug up, estimated to have produced 1,250 million locusts. Locust swarms, often covering up to 300 square kms. and consisting of hundreds of million insects, are sometimes so thick as to obscure the sun, and when on the ground may hold up railway traffic by causing the wheels of locomotives to slip on the tracks. A visitation of such proportions will, in the course of a few short hours, reduce a smiling green tract of hundreds of hectares into a desolate waste of bare stems. White Storks and Rosy Pastors and many other birds are traditional predators and take relentless toll of locusts throughout the year although their activities may make little apparent dent at the time of actual swarming.

A large proportion of the normal food of the majority of birds consists of insects. Some idea of the vast extent of their beneficent activities may be obtained from the fact that many young birds in the first few days of their lives consume more than their own weight of food in 24 hours. Even those species that are predominantly granivorous as adults feed their nest-young almost entirely on soft bodied protein-rich insects till they are fledged. Birds have

phenomenal appetites. The energy required for flight is generated by their rapid digestion and the efficiency of their metabolism. Birds of prey, such as the hawks and owls, often unjustly accused of delinquency and slaughtered out of hand, are amongst the most important of Nature's checks on rats and mice, the most fecund and destructive non-insect pests from which man and his works suffer. Rats have a staggering reproduction potential. They produce 6 litters of an average 8 young per annum, and begin to breed when 3½ months old. Hypothetically this means that if the progeny was of equal sexes, and all the young survived, a single pair would increase to 880 rats by the year's end! As is well known, these rodents are responsible for the destruction of between 10 and 25 per cent of our entire food crops annually, either in the field or as stored grain. A scientific investigation undertaken in the rice growing tracts of the Indus Delta in Lower Sind before Partition—in 1926—revealed the annual damage caused by the Sind Mole Rat (*Gunomys indicus*, now *Bandicota bengalensis kok*) in that area to be between 10 and 50 per cent of the total crop and of the order of Rs. 23 lakhs. And that was at a time when paddy was selling at 12 kg per rupee, again believe it or not! Owls and the diurnal birds of prey are some of Nature's most important controls on rodent populations. The food of the larger owls consists chiefly of rats and mice. It has been found that a single such owl takes two or three rats per night.

Every two rats destroyed hypothetically means a potential suppression of 880 rats annually. And considering that this good work is carried on for 365 nights in a year with no strikes and no paid holidays, and not by a single owl but by the entire local population of owls, some idea of the untold good they do may be obtained.

Another of the more important activities and impacts of birds on our national economy, which has not yet been properly appreciated or studied, is their role in the fertilization of flowers and the dispersal of seeds, and thus on the character of our indigenous flora and natural vegetation. Many species of birds are adapted morphologically by the structure of their bill and tongue for a diet of nectar, and are in a great measure responsible for cross-pollinating certain flowers in the same way as bees and butterflies. There are reciprocal adaptations in ornithophilous flowers—or 'bird flowers' as they are popularly known—to promote cross-pollination in the process of nectar seeking by the bird visitor. It may not be generally known that the large showy rosy red flowers of the semal or silk cotton tree (*Bombax ceiba*), which carry a generous supply of nectar, are largely dependent on birds for their fertilization and thus for the natural regeneration of the semal tree, and the sustained yield of the principal basic soft wood for our flourishing safety match industry, which has an annual turnover of several crore rupees. A good example of beneficial

seed dispersal by frugivorous birds is the mulberry (*Morus alba*) tree first planted on the banks of irrigation canals in the desert areas of Punjab as a sand-binding and anti-erosion measure. The birds took to the fruit avidly and returned the bounty by broadcasting the seeds in their droppings far and wide, creating abundant natural regeneration of the mulberry tree and showing the way for commercial plantations. Mulberry wood constitutes the principal raw material for the thriving sports goods industry for which Punjab has become famous. In 1976-77 India exported over Rs. 2 crore worth of sports goods, such as cricket bats, hockey sticks, tennis and badminton rackets and other items, to the benefit of our foreign exchange reserves. The Sandalwood tree (*Santalum album*), one of the major revenue producers in Karnataka State, also owes its natural abundance to the broadcasting of its seeds by frugivorous birds.

It must be conceded, however, that like most good things in life, the activities of birds are also double-sided. On the debit side of their account must be entered in bold letters their highly negative role in the propagation of noxious weeds, either by fertilizing their flowers such as of the ornithophilous mistletoes (of the plant family Loranthaceae) or by the dispersal of their undigested viable seeds, as also those, for example, of the pernicious Lantana weed. The mistletoes—locally known as ‘bandha’ or ‘karazdar’—are plant parasites that infest orchard

trees like mango or guava, and valuable timber stands such as teak and sal. By boring its roots into the tissues of the host-tree and sucking the sap—its life blood—the parasite reduces bearing capacity in the former case, and retards normal growth of wood in the latter, causing considerable economic loss to fruit grower and forester alike. The thousands of square kilometres that have been overrun and rendered unproductive by the Lantana, though a comparatively recent exotic plant introduction, owes largely to the appeal of its lavishly produced berries to fruit-eating birds.

Birds often pose problems other than the direct harm they sometimes do to Man's food resources and allied concerns which, however, they largely compensate, by their countervailing beneficent services. For instance, they unwittingly act as hosts of zoo-parasites, both internal, and external or as carriers of vectors of pathogenic viruses of Man and his livestock, and disseminate them across the world in the course of their migratory wanderings. In recent years a further cause for their indictment has arisen, namely the increasing hazard they pose to aviation. This has become a serious worldwide problem with the development of fast flying jet aircraft. In spite of considerable sophisticated research in all advanced countries no permanent solution is yet in sight. In India it is chiefly kites and vultures that are responsible for causing serious 'bird strikes' at direct collisions with aircraft, frequently resulting in fatal

crashes. Small birds occasionally get sucked into the air intakes of jet engines necessitating extremely expensive repairs or even the complete scrapping of costly engines. Whether birds deserve the blame for such mishaps, or Man himself for trespassing into the bird's pristine domains, is, of course, a matter of opinion!

However, taking all things into the reckoning, there is little doubt that the good birds do far outweighs the harm, and they therefore deserve the most stringent protection. It is a hackneyed commonplace, nevertheless only too true—and more so in this increasingly material age—that Man does not live by bread alone. By the gorgeousness of their plumages and the loveliness of their forms, by the vivaciousness of their movements and the sweetness of their songs birds typify Life and Beauty. Verily they number among those important trifles that supplement bread in the sustenance of Man and make his living worth while. And to close this plea on behalf of the birds, and for their protection and conservation, I can do no better than quote the introductory remarks of a world renowned biologist the late Sir A. Landsborough Thomson. Chairman of a symposium held in London a few years ago on 'The Problems of Birds as Pests.' He said : "Birds are to a great extent economically beneficial; they are also, of course, scientifically interesting and aesthetically delightful. Yet some species tend to be harmful,

and others become pests when present in excessive numbers or in the wrong places. Our task then is, dispassionately and objectively, to determine the facts and consider what to do.”